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name 'Peorian' is suggested, lies between the Iowan and the Wisconsin till sheets. It is provisionally correlated with the earlier named Toronto beds of peat, etc. 'A Geological Section Across Southern Indiana, from Hanover to Vincennes,' by John F. Newsome. A very excellent geological section has been prepared and plotted, but in the illustration the scale is so reduced that the sections are practically illegible. One can only make them out with a magnifying glass. The letter-press describes the formations and their relations to the topography. 'Notes on the Ohio Valley in Southern Indiana,' by Arthur C. Veatch. The paper discusses the phenomena of the development of the present drainage in Spencer County, Ind., along the Ohio, and incidentally throws light on the relations of the continent to the sea during the formation of the Lafayette beds. 'The Brown or Yellow Loam of North Mississippi and its relation to the Northern Drift,' by T. O. Mabry. After defining the loam the author discusses its stratigraphic relations to the underlying Lafayette and the Loess or Bluff formation, which is regarded as an equivalent. The origin and age of the Loess-Loam concludes the paper. It is regarded as a flood-plain deposit of glacial débris, more or less worked over by the wind. 'Classification of the Mississippian Series,' by Stuart Weller. The paper is a valuable review of the subdivisions proposed for the Mississippian and indicates the portion of the continent over which each prevailed.

THE *Physical Review* for June, the last number of the sixth volume, publishes as frontispiece a portrait of the late Professor William A. Rogers, of Colby University. It also contains an obituary notice of Professor Rogers and a bibliography of his contributions to science, including 61 titles. Other articles in the number are: 'On the Surface Tension of Liquids under the Influence of Electrostatic Induction,' Samuel J. Barnett; 'On the Fall of Potential at the Surface of a Metal when exposed to the Discharging Action of the X-Rays,' Clement D. Child; 'An Experimental Determination of the Period of Electrical Oscillations,' Arthur Gordon Webster.

*Terrestrial Magnetism* for June, 1898. The

first article, by Professors Elster and Geitel, describes a method for determining the upward or downward direction of vertical electric currents in the atmosphere by means of atmospheric electric observations. These observations serve as a control upon the results obtained from magnetic observations made at the same time. Professor Abbe continues his article on 'The Altitude of the Aurora above the Earth's Surface.' The present installment gives a chronological summary of the results obtained up to date since Dalton's time. Mr. Putnam gives an interesting summary of Professor Eschenhagen's investigations of the magnetic anomalies in the Harz Mountains. Relations with reference to geological structure and with regard to deviations of the plumbline are discussed and cartographically exhibited.

In the next article Professor Eschenhagen discusses the electric car disturbances felt by magnetic observatories. The Potsdam Magnetic Observatory insists that no electric railways using the earth as a return circuit be allowed within a radius of fifteen kilometers.

Letters to the Editor and reviews conclude the number.

#### SOCIETIES AND ACADEMIES.

##### CHEMICAL SOCIETY OF WASHINGTON.

THE 103d regular meeting of the Society was held on May 12, 1898.

The first paper of the evening was presented by Messrs. F. K. Cameron and H. A. Holly, and was entitled 'Acetone-Chloroform, 1st paper.' Acetone-chloroform is produced by bringing together acetone and chloroform and adding powdered potassium hydroxid to the cooled mixture in small portions at a time, allowing to stand until the reaction is completed and fractionating the fluid products. The experiments which are described by the authors have led them to the following conclusions:

I. The existence of but one acetone-chloroform, a white, crystalline solid, a derivative of tri-methyl-carbinol.

II. The substance is not a simple addition product and cannot be resolved into its original constituents by direct means.

III. The substance forms no definite hydrate.

IV. The temperature of the quadruple point

for solid, two solutions and vapor in the system acetone-chloroform-water, is 75°.2.

V. The melting point is near, but above 97°, and in all probability perfectly anhydrous material has not yet been obtained.

VI. The system acetone-chloroform-water seems to present the remarkable case of a solid solution and two liquid solutions.

The next paper was presented by Messrs. P. Fireman and E. G. Portner, and was entitled 'The action of normal propyl alcohol on phosphonium iodid.'

The authors, having undertaken to fill up some of the most important gaps in our knowledge of individual phosphines, communicated as the first contribution the method by which they prepared tri-n-propyl phosphine and tetra-n-propyl phosphonium iodid, and described the properties of these bodies.

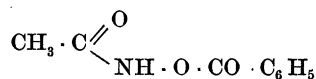
Messrs. F. K. Cameron and E. F. Thayer presented a paper on 'The boiling point curve for benzene-alcohol solutions.'

When a mixture of pure benzene and alcohol containing more than 66.5 per cent. of benzene is partially distilled, it will yield a distillate richer in alcohol. Complete fractional distillation will yield a mixture with a minimum constant boiling point of 66°.7 and containing 66.5 per cent. of benzene and a residue of pure benzene. If the original solution contained less than 66.5 per cent. of benzene it will yield a distillate richer in benzene, and complete fractioning will ultimately yield a distillate of the constant boiling solution and a residue of pure alcohol. Under no circumstances can a complete separation of the two compounds be obtained by any process of distillation.

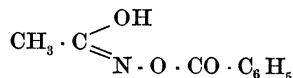
The last paper of the evening was presented by Mr. F. K. Cameron and was entitled 'The benzoyl-ester of acethydroxamic acid.'

The benzoyl-ester of acethydroxamic acid was obtained by Jones as a product of the reaction between sodium isonitroethane and benzoyl chlorid. If ligroin be added to the mother-liquor obtained by the crystallization of the substance from ether another compound is precipitated, isomeric with the first. The isomer is on standing gradually but completely converted into the first modification. Jones regards it as a probable ester of acethydroximic

acid, the relative orientations of the molecules being indicated thus :



Ester of acethydroxamic acid.



Ester of acethydroximic acid.

The authors have studied the two modifications, designating, for purposes of convenience, the former as the  $\alpha$ -compound and the latter as the  $\beta$ -compound, and have arrived at the following conclusions :

I. Both modifications exist in the liquid phase.

II. The  $\alpha$ -, or less fusible modification, is the stable one at ordinary temperatures.

III. Crystals of the  $\beta$ -compound can be obtained by dissolving the  $\alpha$ -compound and precipitating the ester suddenly from solution.

IV. The equilibrium concentration changes with the temperature.

V. The  $\alpha$ -compound is converted into the  $\beta$ -compound with absorption of heat.

VI. By raising the temperature of the system and cooling suddenly the point of solidification may be brought below the stable triple point. It was not possible to realize the eutectic point in this manner because of decomposition of the substance.

VII. The eutectic point of the system was shown to be below 66°, and is near 65°.

WILLIAM H. KRUG,

*Secretary.*

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, JUNE 7.

MR. STEWARDSON BROWN made a communication on plants recently collected by him in the neighborhood of Canogo Lake, Pennsylvania. He described the location and character of the lake, which has an elevation of 2,360 feet, with the finest surroundings of virgin timber in the State. Among other peculiarities of the flora the almost entire absence of blue violets and the profusion and size of *Viola blanda* were noticeable. It was interesting to observe a flora corresponding to our own but with entirely

different species. Illustrative specimens were exhibited.

Attention was called to a collection of exquisite drawings of Australian flowering plants exhibited to the meeting by MRS. F. C. ROWAN. The Secretary thanked Mrs. Rowan on behalf of the Academy for the opportunity of examining the paintings, which are not only of high artistic value, but of great interest botanically on account of their accuracy of delineation and coloring. The artist has represented upwards of five hundred species, many of which were brought by her for the first time to the knowledge of the late Baron Ferdinand Von Müller, in whose collection specimens of all the plants represented were placed. The work was performed under unusually favorable circumstances by Mrs. Rowan, who cruised among the Australasian islands in a small steamer chartered for the purpose, the result being a collection of drawings of altogether extraordinary beauty and botanical interest as representing probably the most gorgeous flora in the world. Mrs. Rowan is now preparing similar illustrations of American plants. While the material at her disposal is not so striking, the results will, without doubt, be equally artistic.

PROFESSOR HENRY PILSBRY spoke of the scientific work of the late Professors Jules Marcou and Fridolin Sandberger, correspondents of the Academy, whose deaths were announced at the meeting.

At the meeting on June 14th the Entomological Section having precedence, DR. HENRY SKINNER made a communication on a collection of lepidoptera and other orders of insects, illustrating variations in size, peculiarities of coloring and habits, structure, sexual diversity, protective mimicry, etc. Other illustrations were shown by means of lantern and screen.

MR. PHILIP P. CALVERT spoke of mimicry and its relation to so-called natural selection. The two kinds of mimicry, known as Batesian and Muellerian, were defined.

PROFESSOR H. A. PILSBRY called attention to a collection of land shells from the arid region of central Australia. Their distribution resembles that of species from an island-dotted sea,

the desert land being supplied with fugitive lakes in the surroundings of which the species are found. They are mostly ground species and their distribution is not affected appreciably by birds. They are probably survivors of a less arid time.

PROFESSOR CARTER described a method of his own for the destruction of the round-headed apple-tree borer. He sprays the burrows with carbon bisulphide by means of a common atomizer and then covers the openings with soft clay. While the grubs are in every case destroyed, the trees are not affected.

Papers under the following titles were presented for publication:

'List of fishes collected at the Canary Islands by Mr. O. F. Cook, with descriptions of four new species,' by David Starr Jordan and James Alexander Gunn, Jr.

'*Hyalodendron navalium*, a new genus and species of Euplectillid sponge,' by J. Percy Moore.

The type of the genus and species described in the latter paper is one of a small collection of silicious sponges gathered in Japan in 1893, by Mr. Frederick Stearns, of Detroit, and sent to the Academy for determination. They were collected by native fishermen and brought into Yokohama harbor by the dredge boats. The single specimen of *Hyalodendron* is the only one which has been reported. The specimens are accompanied by a set of sketches by a native artist.

EDW. J. NOLAN,  
Secretary.

#### NEW BOOKS.

*A Laboratory Guide in Qualitative Chemical Analysis.* H. L. WELLS. New York, John Wiley & Sons; London, Chapman & Hall, Ltd. 1898. Pp. vii + 189.

*A Short Course in Inorganic Qualitative Analysis for Engineering Students.* J. S. C. WELLS. New York, John Wiley & Sons; London, Chapman & Hall. 1898. Pp. vi + 293.

*Technical Mycology.* FRANZ LAFAR. London, Chas. Griffin & Co.; Philadelphia, Pa., Lippincott. 1898. Vol. I. Pp. xviii + 405.

*The Art of Taxidermy.* JOHN ROWLEY. New York, D. Appleton. 1898. Pp. xi + 244.